REMARKS

Applicants request favorable reconsideration and allowance of this application in view of the foregoing amendments and the following remarks.

Claims 1-23 are pending in this application, with Claims 1, 2, 7-9, and 14-23 being independent.

Claims 1, 2, 7, 8, 14-17 and 19-23 have been amended. Applicants submit that support for the amendments can be found in the original disclosure, and therefore no new matter has been added.

Claims 9-13, 18 and 23 are allowed.

Claims 19-23 were rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. The claims have been amended in accordance with the Examiner's suggestion to recite a computer-readable medium. Favorable reconsideration and withdrawal of this rejection are requested.

Claims 1-8, 14-17 and 19-22 were rejected under 35 U.S.C. § 102(b) as being anticipated by Bloom et al. (US 6,282,300). Applicants respectfully traverse this rejection for the reasons discussed below.

As recited in independent Claim 1, the present invention includes, *inter alia*, the features of calculating a projective transform of an image for a selection of angles, and calculating a 1-D correlation between each projective transform and a basis function. With this arrangement, the position of each peak of a correlation provides spatial parameters of an embedded pattern in the image. Applicants submit that the cited art does not disclose or suggest at least these features of Claim 1.

Bloom et al. discloses a method of embedding and detecting a watermark signal in digital image data. However, the detector in Bloom et al. only determines whether or not a given watermark has been embedded in a given image (see col. 6, lines 63-65). That patent does not disclose or suggest detecting spatial parameters of embedded patterns. More specifically, the method disclosed in Bloom et al. computes a discrete log-polar Fourier transform of the input image. This is done by computing the Fourier transform of the input image, computing the magnitude of the Fourier transform, and then performing a log-polar mapping of the magnitude of the Fourier transform. A one-dimensional projection $g(\theta)$ of the log-polar mapping is performed for various angles θ_j. A correlation coefficient is then obtained between each one-dimensional projection $g(\theta_j)$ and the input watermark vector. If the correlation vector is greater than a threshold, then the watermark is present in the input image.

In contrast to Bloom et al.'s one-dimensional projection $g(\theta)$ of the log-polar mapping, the present invention recited in Claim 1 calculates a projective transform of the *input* image for a selection of angles, and then calculates a 1-dimensional correlation between each projective transform and the basis function. Further, Bloom et al. determines a correlation coefficient, which is different from a correlation. In addition, the process of Bloom et al. calculates the magnitude of the Fourier transform, thereby discarding the phase component. All position information resides in the phase component. As a result of such differences, Bloom et al. merely determines whether a watermark is embedded, and it does not determine spatial parameters of an embedded pattern, as recited in Claim 1.

Accordingly, Applicants submit that the present invention recited in Claim 1 is patentable over the cited art. Independent Claims 14 and 19 recite similar features and are believed patentable for reasons similar to Claim 1, as is Claim 8.

As recited in Claim 2, the present invention includes, among others, the features of calculating a projective transform for an image for a selection of angles, calculating a 1-D correlation between each projective transform and a basis function, and determining transformation from spatial parameters. For reasons similar to Claim 1, Applicants submit that Claim 2 is patentable over the art of record. Independent Claims 15 and 20 recite features similar to those of Claim 2 and are believed patentable for similar reasons to Claim 2.

As recited in independent Claim 7, the present invention includes the features of transforming an image to the frequency domain and resampling it onto a quasi polar map. It is multiplied with a transformed basis function and inverse transformed, so that spatial parameters can be determined.

Bloom et al. does not disclose or suggest at least these features. That patent does not disclose resampling an image that has been transformed into the frequency domain, onto a quasi-polar map. Instead, it discloses resampling the *magnitude* of an image that has been transformed onto a log-polar map. Accordingly, Claim 7 is patentable over the cited art. Independent claims 16 and 21 recite similar features and are patentable for reasons similar to Claim 7.

The dependent claims are patentable for the same reasons as the independent claims, as well as for the additional features they recite.

Applicants submit that this application is in condition for allowance.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

Attorney for Applicants
Brian L. Klock
Registration No. 36,570

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
BLK/lcw

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